UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/549,782	04/14/2000	Stefan Eckart	0100.0000730	8961

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EXAMINER
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ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/549,782	ECKART ET AL.
	Examiner	Art Unit	
	Dmitry Levitan	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>23 November 2004</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-60</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-9,11-16,19,23,25,31-48,52,54 and 57</u> is/are rejected.

7) ☒ Claim(s) <u>10,17,18,20-22,24,26-30,49-51,53,55,56 and 58-60</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>23 November 2004</u> is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Amendment, filed 12/23/04, has been entered. Claims 1-60 remain pending.

Drawings

1.   The drawings were received on 12/23/04. These drawings are not approved.

2.   The drawings are objected to because they do not fully support the specification.

For example:

on page 6 lines 1-13 of the specification, as no additional packets are transmitted, line

312 should remain constant during the second clock cycle. However, Fig. 4 shows line 312 with

no changes during the first and the second clock cycles,

Bits axis 302 is located ahead of clock cycle 303, making it start in negative time,

Upper limit 402 on Fig. 4 does not represent the highest bit occurrence, as disclosed. It

seems that the buffer size will permit a higher bit occurrence than shown by line 402.

These are only the examples of the drawings problems. Applicant should review all the drawings

for errors and consistency with the specification.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the

Office action to avoid abandonment of the application. Any amended replacement drawing sheet

should include all of the figures appearing on the immediate prior version of the sheet, even if

only one figure is being amended. The figure or figure number of an amended drawing should

not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be

removed from the replacement sheet, and where necessary, the remaining figures must be

renumbered and appropriate changes made to the brief description of the several views of the

drawings for consistency. Additional replacement sheets may be necessary to show the

renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The

objection to the drawings will not be held in abeyance.

Specification

3.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

The following title is suggested: Method and apparatus for multiplexing data streams

using time constraints.

Claim Rejections - 35 USC § 112

4.   In light of Applicant's amendment and remarks, claims 40 rejection under 35 U.S.C. 112,

first paragraph and claims 1, 13, 33 and 43 rejection under 35 U.S.C. 112, second paragraph,

have been withdrawn.

5.   Claims 23, 25, 31, 36-42, 52, 54, 57 are rejected under 35 U.S.C. 112, first paragraph, as

failing to comply with the enablement requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to enable one skilled in the art to which it

pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not provide sufficient details to enable a skilled in the art to make and use

the invention because it does not adequately describe the following:

Regarding claim 36, how to adjust a Tearliest value and Tlatest value for each packet in a data stream for a plurality of data streams and how to multiplex packets from several data streams according to Tearliest value and Tlatest value to provide drift compensated output data stream.

Regarding claims 23, 25, 31, 52, 54 and 57 how to calculate a new current time value based on the size of empty packet, marked candidate and selected candidate.

The specification does not provide enough details about the structure and operation of the elements associated with the above identified claimed features to enable one. skilled in the art to make and use the invention without undue experimentation.

6.   Claims 4 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4 and 6 limitations "substantially constant" and "constant" frame rate are unclear, because specification does not provide criteria how to differentiate substantially constant from constant.

Claim Rejections - 35 USC § 103

7.   Claims 1-9, 11-16, 19, 32-39, 41-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,188,700) in view of VanDeusen (US 6,598,172).

8.   Regarding claims 1, 33 and 43, Kato substantially teaches the limitations of the claims. A method, a multiplexer and a program, comprising:

Obtaining a first input data stream (video bit stream on Fig. 1 and 1:36-45);

Obtaining buffer delay information (d0 start time on Fig. 3 and 3:11-15, inherently includes

buffer delay time as a portion of the lapse of time on the encoder side);

Determining a first lowest bit occurrence constraint, based on the buffer delay information

(locating zigzag locus of the encoder system to the left of the line cd on Fig. 3 and starting on d0,

as cd line represents the bit occupancy quantity 3:66-67 and 4:1-4);

Determining a first highest bit occurrence constraint, based on the shifting first lowest bit

occurrence constraint upward (line ab on Fig. 3, as the shift between lines ab and cd expresses

the size B of the encoder buffer 3 3:40-44);

Determining a first earliest time constraint, based on first highest bit occurrence constraint (start

time d0 is located to the left of the ab line on Fig. 3, so the earliest start time is defined by line

ab);

Determining a first latest time constraint, based on first lowest bit occurrence constraint (start

time d0 is located to the left of cd line on Fig. 3, so the latest start time is limited by line cd).

Kato does not teach determining a first lowest bit occurrence constraint based on the first time

stamp, however Kato teaches using time points at which n-th encoded picture is encoded 3:57-65

and MPEG standard.

VanDeusen teaches using time stamps for video packets (1:18-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made

to add determining a first lowest bit occurrence constraint based on the first time stamp of

VanDeusen to the system of Kato to improve the synchronization of the encoder.

1.   Regarding claim 36, Kato substantially teaches the limitations of claim 36.

Kato teaches multiplexing streams (1:62-67) according to determined Tearliest and Tlatest as shown above in the claim 1 rejection (earliest and latest time constraints).

Kato does not teach compensating the drift by adjusting the packets time values.

VanDeusen teaches compensating the drift by adjusting the packets time values (drift metric adjustment on Fig. 6 and 8:22-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add compensating the drift by adjusting the packets time values of VanDeusen to the system of Kato to improve the system output data stream stability.

2.   Regarding claim 2, Kato teaches first lowest bit constraint increasing linearly over time (line cd on Fig. 3).

3.   Regarding claims 12 and 44, Kato teaches first highest bit constraint shifted upward by a constant amount (constant B on Fig. 3).

4.   Regarding claims 4, 6, 7 and 38, Kato teaches a system with a substantially constant (video signals decoded at constant rate 3:57-65), constant (3:33-37) and variable (7:66-67 and 8:1-9) frame rate input data stream.

5.   Regarding claims 8, 9, 11 and 41, Kato teaches a system with constant and variable frame sizes input data stream (video stream depending on the nature of picture 1:15-35).

6.   Regarding claim 37, Kato teaches a system wherein relations between Tearliest and Tlatest includes buffer delay information (d0 start time on Fig. 3 and 3:11-15, inherently includes buffer delay time as a portion of the lapse of time on the encoder side and relations between Tearliest and Tlatest depend on the buffers size/delay selection, based on the start time).

7.   Regarding claim 13 and 45, Kato teaches a system wherein multiplexer 14 operates with plurality of input streams (1:62-67) in a manor described in rejection of claim 1 above.

8.   Regarding claim 14, Kato teaches a system wherein a second stream has a second

substantially constant bit rate (video stream 3:57-65).

9.   Regarding claims 15, 34 and 46, Kato teaches multiplexing multiple streams. Kato does

not teach dividing the streams into packets and combining packets in one output stream.

Official notice is taken that dividing the streams into packets and combining packets in one

output stream is well known and expected in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made

to add dividing the streams into packets and combining packets in one output stream to the

system of Kato to utilize one address for the packets of the output stream, to simplify the packets

routing.

10.   Regarding claims 16 and 47, Kato does not teach combining packets in one output

stream determined by each incoming stream earliest and latest time constraints.

Official notice is taken that combining packets in one output stream determined by each

incoming stream earliest and latest time constraints. is well known and expected in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made

to combine packets in one output stream determined by incoming stream earliest and latest time

constraints in the system of Kato to avoid further delays for late packets.

11.   Regarding claims 19 and 48, Kato teaches calculating an initial time value (start time d0

4:24-34).

12.   Regarding claims 32, 35 and 42, Kato teaches the output stream as an MPEG stream

(2:23-45).

13.   Regarding claims 3, 5 and 39, lines cd and ab would inherently vary from being linear

when the drift is compensated (slope change per bit rate adjustment 3:33-37).

Allowable Subject Matter

14.   Claims 10, 17, 18, 20-22, 24, 26-30, 49-51, 53, 55, 56, 58-60 are objected to as being

dependent upon a rejected base claim, but would be allowable if rewritten in independent form

including all of the limitations of the base claim and any intervening claims.

Response to Arguments

15.   Applicant's arguments filed 11/23/04 have been fully considered but they are not

persuasive.

On page 5 of the Response, Applicant argues that adjusting a Tearliest value and Tlatest

value for each packet of a plurality of packets for each data stream of the plurality of data steams

is sufficiently described in the specification.

Examiner respectfully disagrees.

The portion of the Application, cited by Applicant, repeat the claim 36 language and provide no

details on the operation of the claimed matter.

On page 6 of the Response, Applicant argues that the calculation of a new current time

value based on size of empty packet, marked candidate and selected candidate is sufficiently

described in the specification.

Examiner respectfully disagrees.

The portion of the Application, cited by Applicant, repeat the claims 23, 25, 31, 52, 54 and 57

language and provide no details on the operation of the claimed matter.

On page 7 of the Response, Applicant argues using terms "constant" and "substantially

constant" in otherwise identical claims 4 and 6 does not make the claims unclear.

Examiner respectfully disagrees.

Examiner believes that using different terms describing the same concept in otherwise identical

claims is confusing.

On page 8 of the Response, Applicant argues Kato does not teach determining a first

lowest bit occurrence constraint, based on the first time stamped information and the buffer delay

information.

Examiner respectfully disagrees.

Kato teaches determining a first lowest bit occurrence constraint, based on the buffer delay

information (locating zigzag locus of the encoder system to the left of the line cd on Fig. 3 and

starting on d0, as cd line represents the bit occupancy quantity 3:66-67 and 4:1-4) and

VanDeusen, not Kato, teaches using time stamps for video packets (1:18-40) as disclosed in 103

rejection above.

On page 8 of the Response, Applicant argues Kato teaches bit occupancy, patently

different from bit occurrence of the claim 1.

Examiner respectfully disagrees.

The drawings and specification of the Applications and Kato are directed to the same subject as

the variable rate encoding in a video buffer verifier (VBV), using the same axis in Fig. 3 of the

reference and Fig. 4 of the Application and discussing the same matter (issues related to the bits

underflow and overflow of the buffer).

Examiner believes that bit occupancy and bit occurrence are two terms describing the same

concept, as number bits accumulated in the buffer.

On page 9 of the Response, Applicant argues Kato does not teach calculation of a lowest

or highest time constraint.

Examiner respectfully disagrees.

Kato teaches determining a first earliest time constraint, based on first highest bit occurrence

constraint (start time d0 is located to the left of the ab line on Fig. 3, so the earliest start time is

defined by line ab) and determining a first latest time constraint, based on first lowest bit

occurrence constraint (start time d0 is located to the left of cd line on Fig. 3, so the latest start

time is limited by line cd).

Conclusion

16.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Dmitry Levitan whose telephone number is (571) 272-3093. The

examiner can normally be reached on 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dmitry Levitan
Patent Examiner.
03/23/05

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